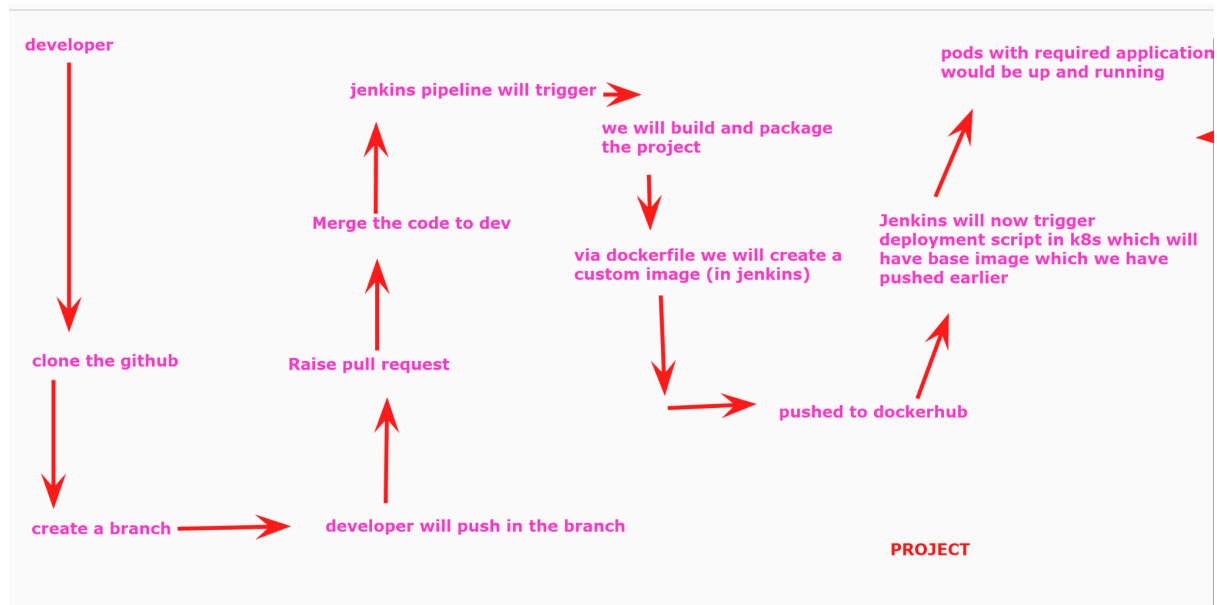


PROJECT

FLOW 👍



We will launch 3 aws ubuntu machines - t3.medium with all traffic enabled in the security group and use ebs as 20 gb storage

1st machine : jenkins , docker , k8s (master machine)

2nd and 3rd machines: k8s nodes

Use this document to install kubernetes

<https://github.com/akshu20791/Deployment-script/blob/main/readme-k8s>

We will install jenkins in the master machine as well:

```
wget https://raw.githubusercontent.com/akshu20791/Deployment-script/main/jenkins.sh
```

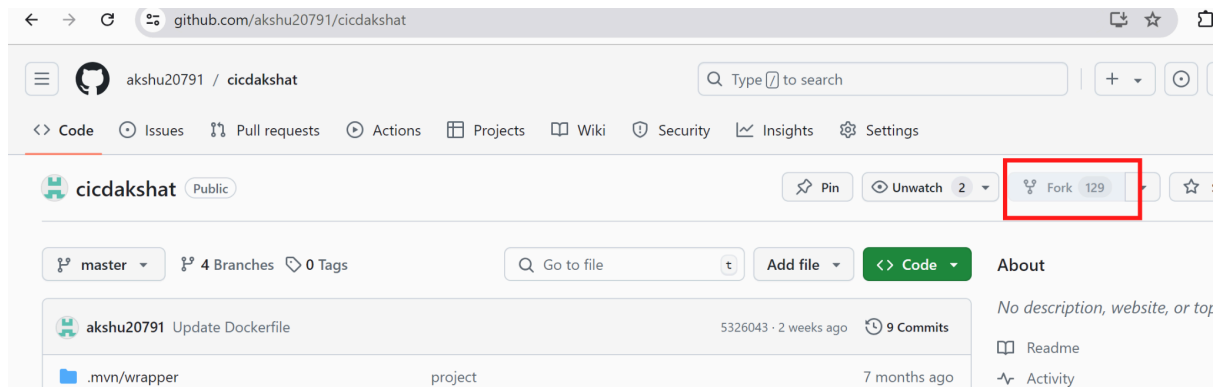
```
ls
```

```
chmod +x jenkins.sh
```

```
./jenkins.sh
```

NOW WILL GO TO THE PROJECT REPO : <https://github.com/akshu20791/cicdakshat/>

Fork the project



After this you can use the repo by yourself and make the changes as well

Create a new folder

Open git bash

And clone the repo

```
$ git clone https://github.com/akshu20791/cicdakshat
Cloning into 'cicdakshat'...
remote: Enumerating objects: 191, done.
remote: Counting objects: 100% (95/95), done.
remote: Compressing objects: 100% (22/22), done.
```

```
# cd cicdakshat
```

```
# git branch devops1
```

```
# git checkout devops1
```

Create a filestart tracking the file ...commit

```

aksha@LAPTOP-SQEMF6TV MINGW64 ~/OneDrive/Desktop/c
$ git checkout devops1
Switched to branch 'devops1'

aksha@LAPTOP-SQEMF6TV MINGW64 ~/OneDrive/Desktop/c
$ touch file1

aksha@LAPTOP-SQEMF6TV MINGW64 ~/OneDrive/Desktop/c
$ git add .

aksha@LAPTOP-SQEMF6TV MINGW64 ~/OneDrive/Desktop/c
$ git commit -m"c1"
[devops1 1676ae0] c1
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file1

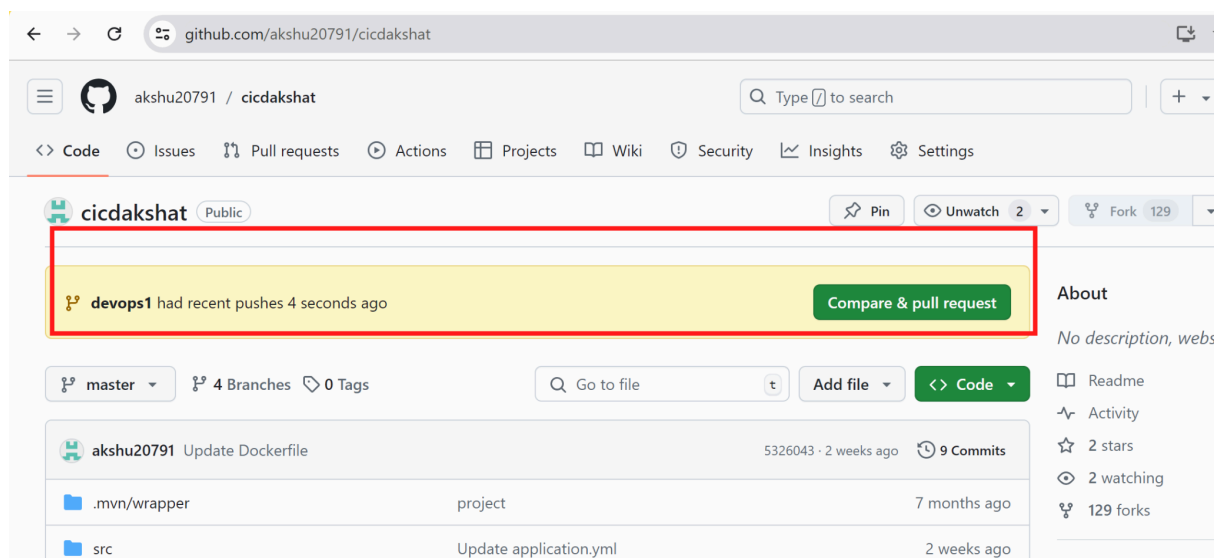
```

git push -u origin devops1

(in the pop up appeared put the Personal access token for the token keys)

#####

You will go to the github repo



The screenshot shows the GitHub repository page for 'akshu20791 / cicdakshat'. The notification bar highlights that 'devops1' has recent pushes. The repository details section shows the commit history and file structure.

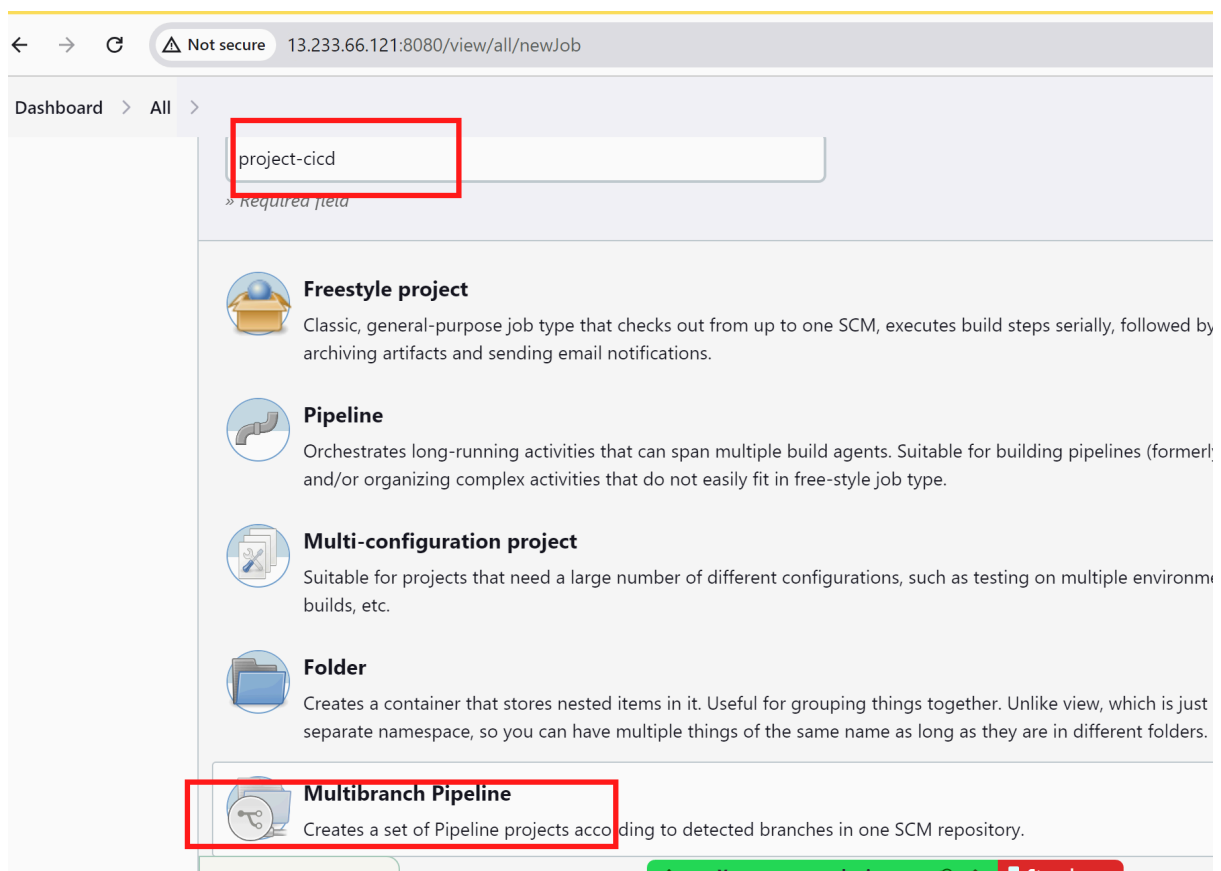
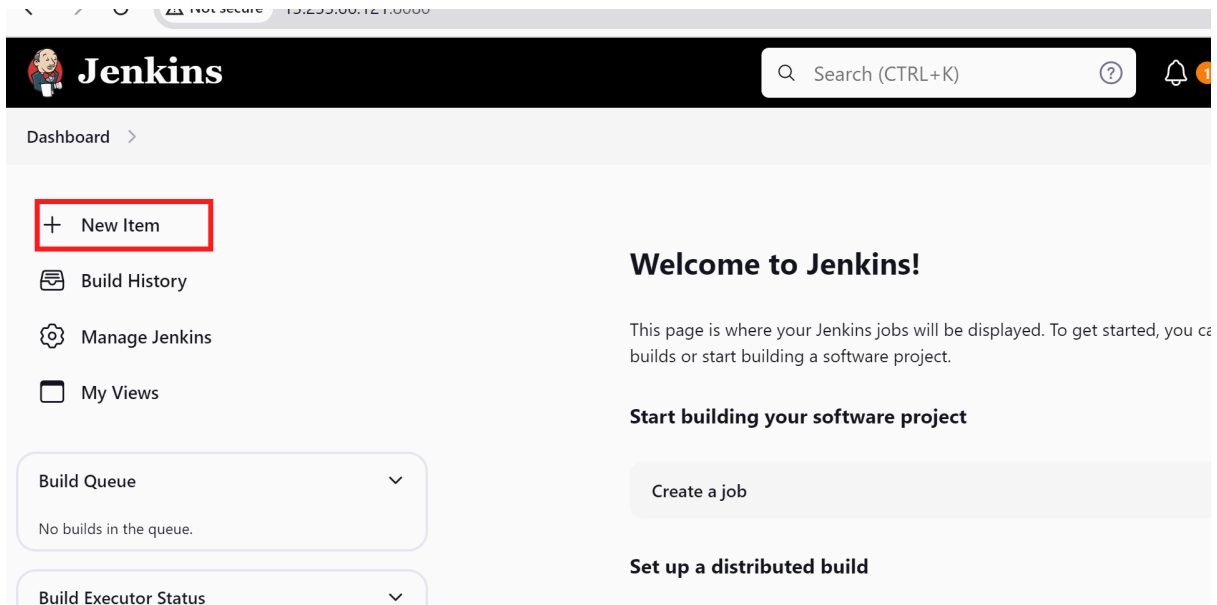
Commit	Author	Message	Time
5326043	akshu20791	Update Dockerfile	2 weeks ago
1676ae0	akshu20791	c1	2 weeks ago

The file structure is as follows:

- .mvn/wrapper (project, 7 months ago)
- src (Update application.yml, 2 weeks ago)

For now we will not raise the pull request...first lets create pipeline

We will open jenkins which we installed in the master



Dashboard > project-cicd > Configuration

Configuration

General

- General
- Branch Sources
- Build Configuration
- Scan Multibranch Pipeline Triggers
- Orphaned Item Strategy
- Appearance
- Health metrics
- Properties

Display Name ?

myfirstpipeline

Description

Plain text [Preview](#)

Branch Sources

Git

Project Repository ?

Use source as git

https://github.com/akshu20791/cicdakshat/

Credentials ?

- none -

+ Add ▾

Behaviors

Discover branches ?

Add ▾

Property strategy

All branches get the same properties

(you can put your forked branch)

Build Configuration

Mode

by Jenkinsfile

Script Path ?

Jenkinsfile

Scan Multibranch Pipeline Triggers

☒ Periodically if not otherwise run ?

Interval ?

1 minute

Orphaned Item Strategy

It will periodically check for every 1 min and if there is any update on github then it will build the project

Dashboard > project-cicd > Configuration

Orphaned Item Strategy

Jobs for removed SCM heads (i.e. deleted branches) can be removed immediately or default, jobs will be removed as soon as Jenkins determines their associated SCM he useful to configure a different retention strategy to be able to examine build results

☐ Abort builds ?
 ☒ Discard old items

Days to keep old items
 if not empty, old items are only kept up to this number of days

Max # of old items to keep
 if not empty, only up to this number of old items are kept

whatever the logs are getting generated in the machine we want to get deleted regularly

Jenkins

Search (CTRL+K)

Dashboard > myfirstpipeline >

Status

Configure

Scan Multibranch Pipeline Now

Scan Multibranch Pipeline Log

Multibranch Pipeline Events

Delete Multibranch Pipeline

Build History

Rename

Pipeline Syntax

Credentials

Build Queue

myfirstpipeline

Folder name: project-cicd

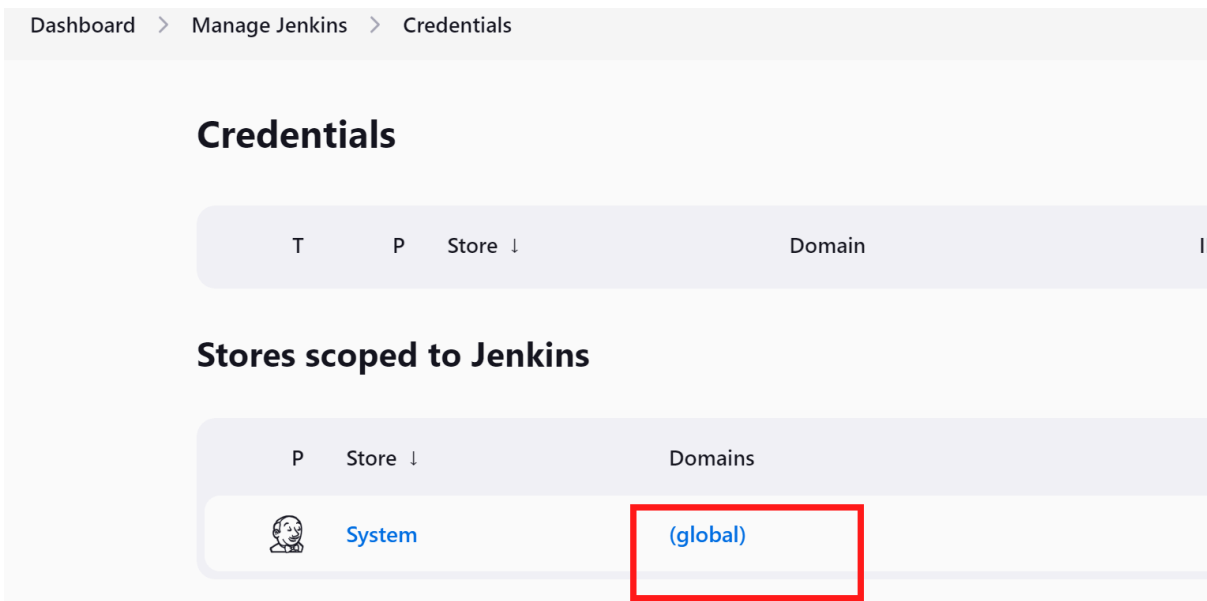
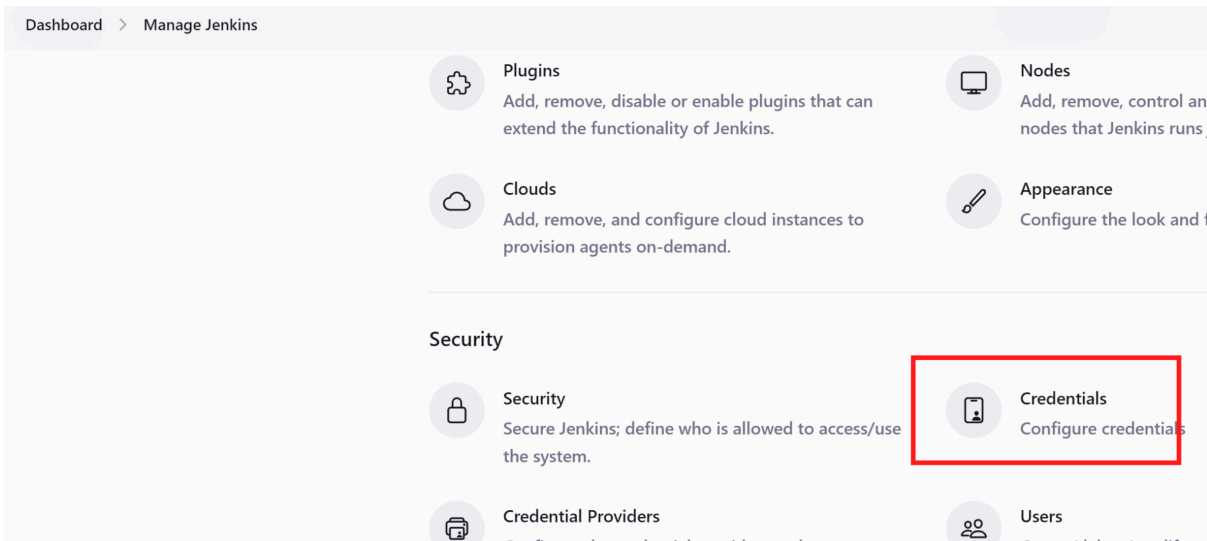
Branches (5)

S	W	Name ↓	Last Success	Last Failure	Last Dura
...	☀	akshatnewbranch	N/A	N/A	N/A
...	☀	devops1	N/A	N/A	N/A
...	☀	master	N/A	N/A	N/A
...	☀	mynewbranch	N/A	N/A	N/A
...	☀	secondbranch	N/A	N/A	N/A

(if builds failed we are fine because we have not configured alot of things as of now)

Go to jenkins dashboard

Go to manage jenkins



+ Add credential

Here i will be create dockerhub credentials so that my code can be pushed to dockerhub

Dashboard > Manage Jenkins > Credentials > System > Global credentials (unrestricted) >

Username with password

Scope ?
Global (Jenkins, nodes, items, all child items, etc)

Username ?
akshu20791 **username of docker hub account**

☐ Treat username as secret ?

Password ?
..... **this is password to access hub.docker.com**

ID ?
dockerhub-pwd **this id is mentioned in the jenkins file. if you are using something else change in jenkins file as well**

Description ?
dockerhub oassword

We will now install some plugins

Go to manage jenkins
We will install docker plugins

Jenkins

Search (CTRL+K)

admin

Dashboard > Manage Jenkins > Plugins

Plugins

Search: docker

Install

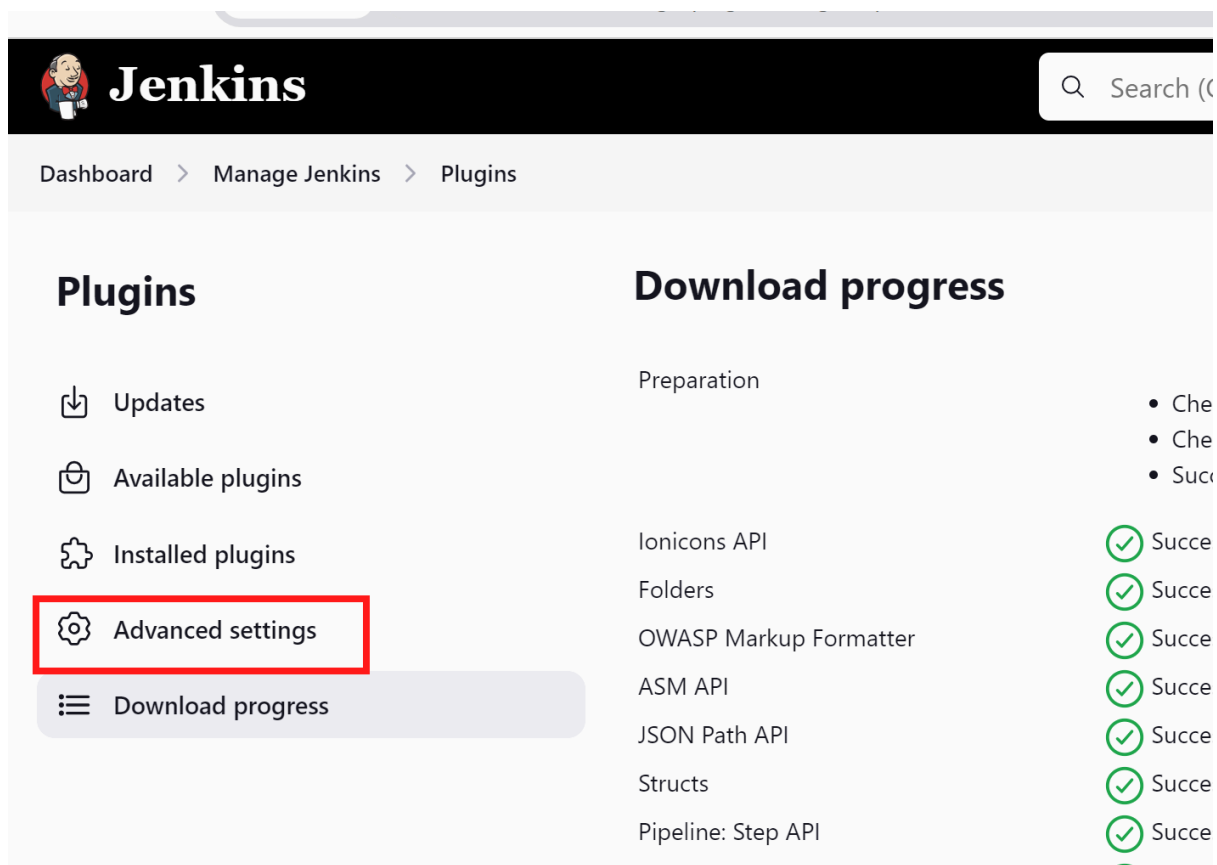
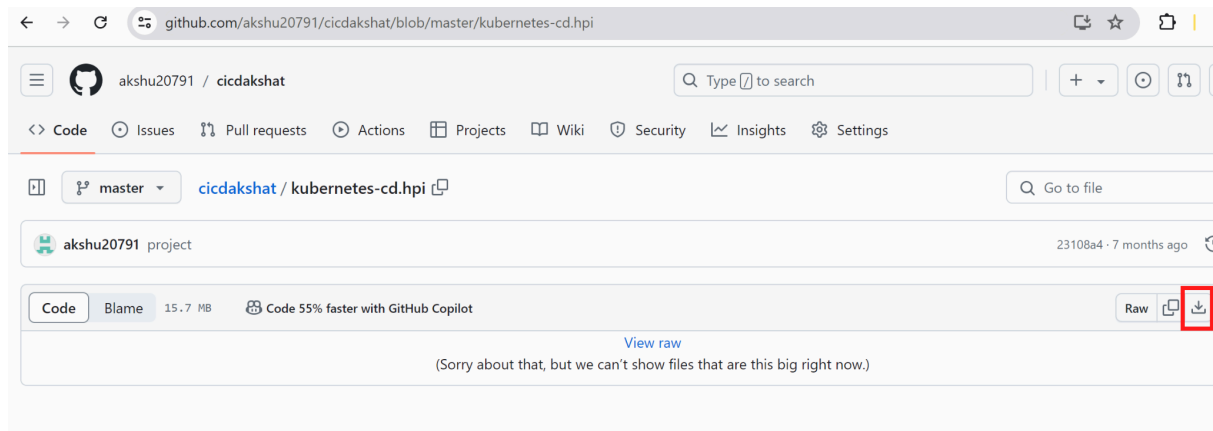
Available plugins

Install	Name	Released
<input checked="" type="checkbox"/>	Docker 1.6.2 Cloud Providers Cluster Management docker This plugin integrates Jenkins with Docker 1 mo 16 days ago	
<input type="checkbox"/>	Docker Commons 439.va_3cb_0a_6a_fb_29 Library plugins (for use by other plugins) docker Provides the common shared functionality for various Docker-related plugins. 1 yr 0 mo ago	
<input checked="" type="checkbox"/>	Docker Pipeline 580.vc0c340686b_54 pipeline DevOps Deployment docker Build and use Docker containers from pipelines. 1 mo 29 days ago	
<input type="checkbox"/>	Docker API 3.3.6-90.ve7c5c7535ddd Library plugins (for use by other plugins) docker	

We will also install kubernetes plugin

To install kubernetes plugin 👍 -> we will download a plugin locally from github and upload it on jenkins

Go to <https://github.com/akshu20791/cicdakshat/blob/master/kubernetes-cd.hpi>



Plugins

- Updates
- Available plugins
- Installed plugins
- Advanced settings**
- Download progress

Advanced settings

The Proxy configuration form has been moved to [Configure System page](#)

Deploy Plugin

You can select a plugin file from your local system or provide a URL to install a plugin from outside the confi

File

upload the plugin which you have downloaded and click on de

Choose File No file chosen

Or

URL

Deploy



Jenkins

Search (CTRL+K)

Plugins

- Updates
- Available plugins
- Installed plugins
- Advanced settings**
- Download progress

Advanced settings

The Proxy configuration form has been moved to [Configure System page](#)

Deploy Plugin

You can select a plugin file from your local system or provide a URL to install a plugin f

File

Choose File kubernetes-cd (8).hpi

Or

URL

Deploy

go to master machine

```
-2-198:/home/ubuntu# sudo usermod -aG docker jenkins
-2-198:/home/ubuntu#
```

service jenkins restart

```
/ubuntu# service jenkins restart
/ubuntu#
```

Now lets once check the jenkinsfile

```
1 pipeline {
2   agent any
3   stages{
4     stage('Build Maven'){
5       steps{
6         git url: 'https://github.com/akshu20791/cicdakshat/', branch: "master"
7         sh 'mvn clean install'
8       }
9     }
10    stage('Build docker image'){
11      steps{
12        script{
13          sh 'docker build -t akshu20791/endoendproject25may:v1 .'
14        }
15      }
16    }
17    stage('Docker login') {
18      steps {
19        withCredentials([usernamePassword(credentialsId: 'dockerhub-pwd', passwordVariable: 'PASS', usernameVariable: 'USER')]) {
20          sh "echo $PASS | docker login -u $USER --password-stdin"
21          sh 'docker push akshu20791/endoendproject25may:v1'
22        }
23      }
24    }
25  }
26 }
```

modify this with your github repo

update with your dockerhub id

After updating it...we will generate the kubeconfigid

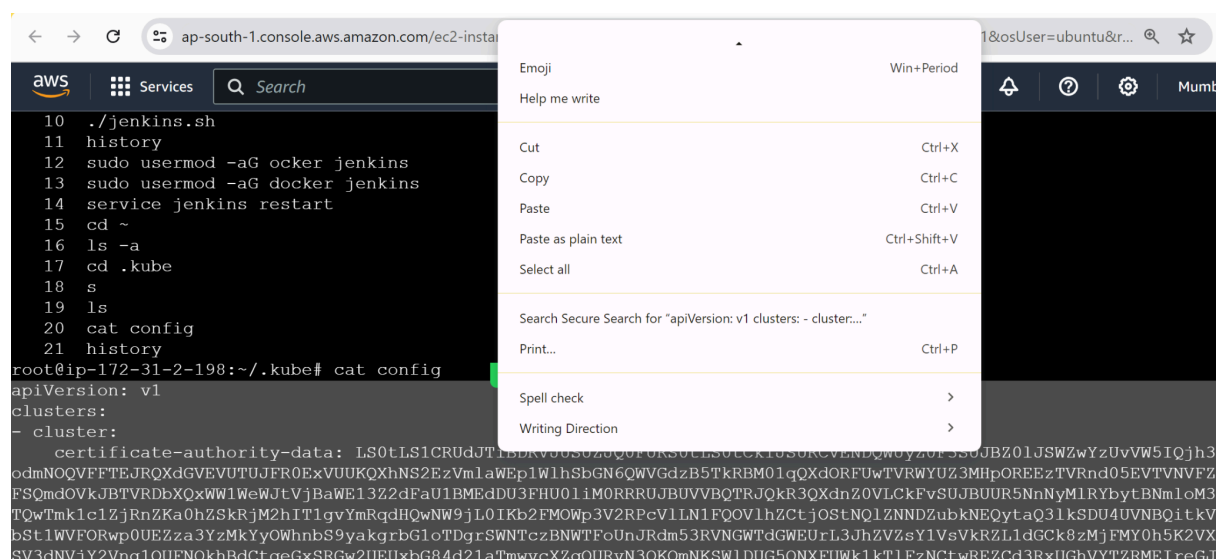
```
cd ~
ls -a
cd .kube

ls
cat config
```

RUN IN MASTER

```
cd ~
ls -a
cd .kube
ls
cat config
```

Copy the whole content which came up



Go to jenkins - manage jenkins - credentials - global
Add credentials

New credentials

Kind

Username with password

Username with password

GitHub App

Kubernetes configuration (kubeconfig)

SSH Username with private key

Secret file

Secret text

X.509 Client Certificate

Certificate

New credentials

Kind

Kubernetes configuration (kubeconfig)

Scope ?

Global (Jenkins, nodes, items, all child items, etc)

ID ?

**if you change this id you need to
change in Jenkinsfile as well**

k8sconfigpwd

Description ?

Description ?

Kubeconfig

☒ Enter directly

Content ?

here you will paste that code which we copied earlier

☐ From a file on the Jenkins master

☐ From a file on the Kubernetes master node


Create

You are screen sharing

Create

Lets execute the pipeline

← → ↺ ⚠ Not secure 13.233.66.121:8080/job/project-cicd/job/devops1/

 **Jenkins**

Search (CTRL+K) ? 🔔 2 🛡

Dashboard > myfirstpipeline > devops1 >

📄 Status

</> Changes

▶ Build Now

⚙ View Configuration

📄 Stages

🔍 Pipeline Syntax

☁ Build History trend ▾

🔍 Filter... /

🚫 #1

🚫 **devops1**

Full project name: project-cicd/devops1

Permalinks

- [Last build \(#1\), 34 min ago](#)
- [Last failed build \(#1\), 34 min ago](#)
- [Last unsuccessful build \(#1\), 34 min ago](#)
- [Last completed build \(#1\), 34 min ago](#)

Dashboard > myfirstpipeline > devops1 >

Status

Changes

Build Now

View Configuration

Stages

Pipeline Syntax

Build History

trend

Filter...

#2

Jul 20, 2024, 5:59 AM

devops1

Full project name: project-cicd/devops1

Permalinks

You are muted. Press Alt+A to unmute your microphone, or press and hold the SPACE key to temporarily unmute.

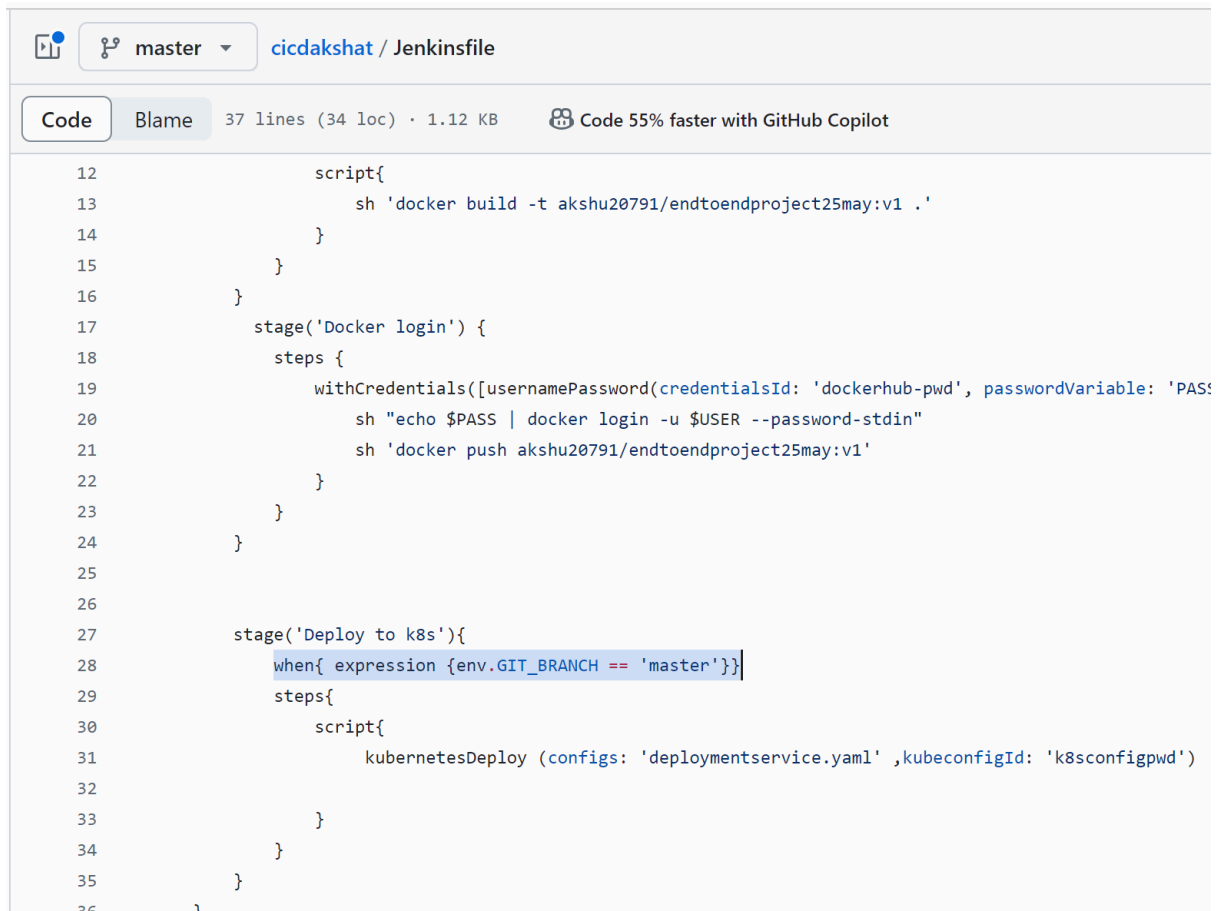
Last build (#1), 34 min ago

Last failed build (#1), 34 min ago

Last unsuccessful build (#1), 34 min ago

Last completed build (#1), 34 min ago

The deployment is not happening in the branch as we have put the condition in the jenkinsfile that if the branch is master then only the deployment will happen



```
12         script{
13             sh 'docker build -t akshu20791/endoendproject25may:v1 .'
14         }
15     }
16 }
17 stage('Docker login') {
18     steps {
19         withCredentials([usernamePassword(credentialsId: 'dockerhub-pwd', passwordVariable: 'PASS
20             sh "echo $PASS | docker login -u $USER --password-stdin"
21             sh 'docker push akshu20791/endoendproject25may:v1'
22         }
23     }
24 }
25
26
27 stage('Deploy to k8s'){
28     when{ expression {env.GIT_BRANCH == 'master'}}
29     steps{
30         script{
31             kubernetesDeploy (configs: 'deploymentervice.yaml' ,kubeconfigId: 'k8sconfigpwd')
32
33         }
34     }
35 }
36 }
```


Now developer and manager is confirmed and they wanted to deploy the project...so the developer will not raise the pull request to the manager


Either you can click on pull request tab and raise pull request or


← → ↻ github.com/akshu20791/cicdakshat






☰ akshu20791 / cicdakshat 🔍 Type ↵ to search

<> Code Issues Pull requests Actions Projects Wiki Security Insights Settings

 **cicdakshat** Public Pin Unwatch 2


 **devops1** had recent pushes 52 minutes ago **Compare & pull request**

 master 5 Branches 0 Tags 🔍 Go to file Add file <> Code

 akshu20791 Update Dockerfile 5326043 · 2 weeks ago 9 Commits
 .mvn/wrapper project 7 months ago
 src Update application.yml 2 weeks ago
 .gitignore project 7 months ago
 Dockerfile Update Dockerfile 2 weeks ago

About
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[Create a](#)



 **Add a title**

c1


Add a description

Write Preview H B I ≡ <> 🔗 ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡



Add your description here...





 Markdown is supported  Paste, drop, or click to add files


Create pull request

 Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).



← → ↻ github.com/akshu20791/cicdakshat/pull/2

 **Open** akshu20791 wants to merge 1 commit into [master](#) from [devops1](#) 


 Conversation 0  Commits 1  Checks 0  Files c




 akshu20791 commented now



No description provided.

  c1

Add more commits by pushing to the [devops1](#) branch on [akshu20791/cicdakshat](#)




-  **Require approval from specific reviewers before merging**
[Rulesets](#) ensure specific people approve pull requests before they're merged.
-  **A build service has not been set up**
We have detected a top-level `Dockerfile`. Pick from [apps that can per](#)
-  **This branch has no conflicts with the base branch**
Merging can be performed automatically.

Merge pull request  You can also [open this in GitHub Desktop](#) or 

My jenkins pipeline should trigger

My master branch is triggered automatically



Jenkins

Q Search (CTRL+K) ?

Dashboard > myfirstpipeline > master >

Status

Changes

Build Now

View Configuration

Stages

Pipeline Syntax

master

Full project name: project-cicd/master

Permalinks

Last build (#2), 37 sec ago

Last failed build (#1), 42 min ago

Last unsuccessful build (#1), 42 min ago

Last completed build (#1), 42 min ago


Build History

trend

Filter...

#2

Jul 20, 2024, 6:07 AM



Jenkins

Q Search (CTRL+K) ?

Dashboard > myfirstpipeline > master >

Status

Changes

Build Now

View Configuration

Stages

Pipeline Syntax

master

Full project name: project-cicd/master

Permalinks

Last build (#2), 37 sec ago

Last failed build (#1), 42 min ago

Last unsuccessful build (#1), 42 min ago

Last completed build (#1), 42 min ago

Build History

trend

Filter...

#2

Jul 20, 2024, 6:07 AM

Now lets see how we can access the project

Go to master

```
root@ip-172-31-2-198:~/.kube# kubectl get services
NAME                TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE
kubernetes           ClusterIP     10.96.0.1     <none>         443/TCP          72m
springboot-k8ssvc    NodePort      10.99.63.64   <none>         8080:30322/TCP   42s
root@ip-172-31-2-198:~/.kube#
```

Copy the publi ip of any node :30322

